SHARP Service Manual

INTEGRATED
STEREO AMPLIFIER

MODEL SM-1122H

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

SPECIFICATIONS

GENERAL DESCRIPTION

Power source:	a.c. 110/220/240V. 50/60Hz
Power consumption:	150W
Semiconductors:	1-IC (Integrated circuit) 15-Transistor 6-Diode 6-LED (Light Emitting Diode)
Dimensions:	Width: 390mm Height: 142mm Depth: 257mm
Weight:	5.5kg

MAIN AMPLIFIER

Circuit:	Differential amplifier, semicomplementary system, OCL (Output Capacitor-Less)
Music power output (1kHz):	2 x 30W/4 ohms, Both channels driven, 0.8% distortion 2 x 20W/8 ohms, Both channels driven, 0.8% distortion
Continuous power output (at 1kHz):	2 x 20W/4 ohms, Both channels driven, 0.8% distortion 2 x 13W/8 ohms, Both channels driven, 0.8% distortion
Intermodulation distortion:	0.3% at 5W output
Damping factor:	more than 30 (at 1kHz, 8 ohms)
Power bandwidth:	10Hz ~ 25kHz (4 ohms, Both channele driven)

PRE-AMPLIFIER

Circuit:	Direct coupled equalizer circuit 'CR' type tone control
Input sensitivity and input impedance:	
PHONO:	3mV/50k ohms
AUX.:	150mV/50k ohms
TUNER:	150mV/50k ohms
TAPE:	290mV/50k ohms
MIC:	2mV/600 ohms
Output level and loaded impedance:	
TAPE REC:	30mV/80k ohms
MIC MIX OUT:	30mV/80k ohms
Phono overload:	200mV (RMS, 1kHz, 0.8% THD)
RIAA curve deviation:	30Hz ~ 20kHz ±1dB
Frequency response:	20Hz ~ 70kHz ±3dB (AUX.)
Tone control:	
Bass:	±8dB at 100Hz
Treble:	±10dB at 10kHz

Specifications of this model are subject to change without prior notice.

SHARP CORPORATION OSAKA, JAPAN

LAYOUT OF FRONT PARTS (Figure 1)

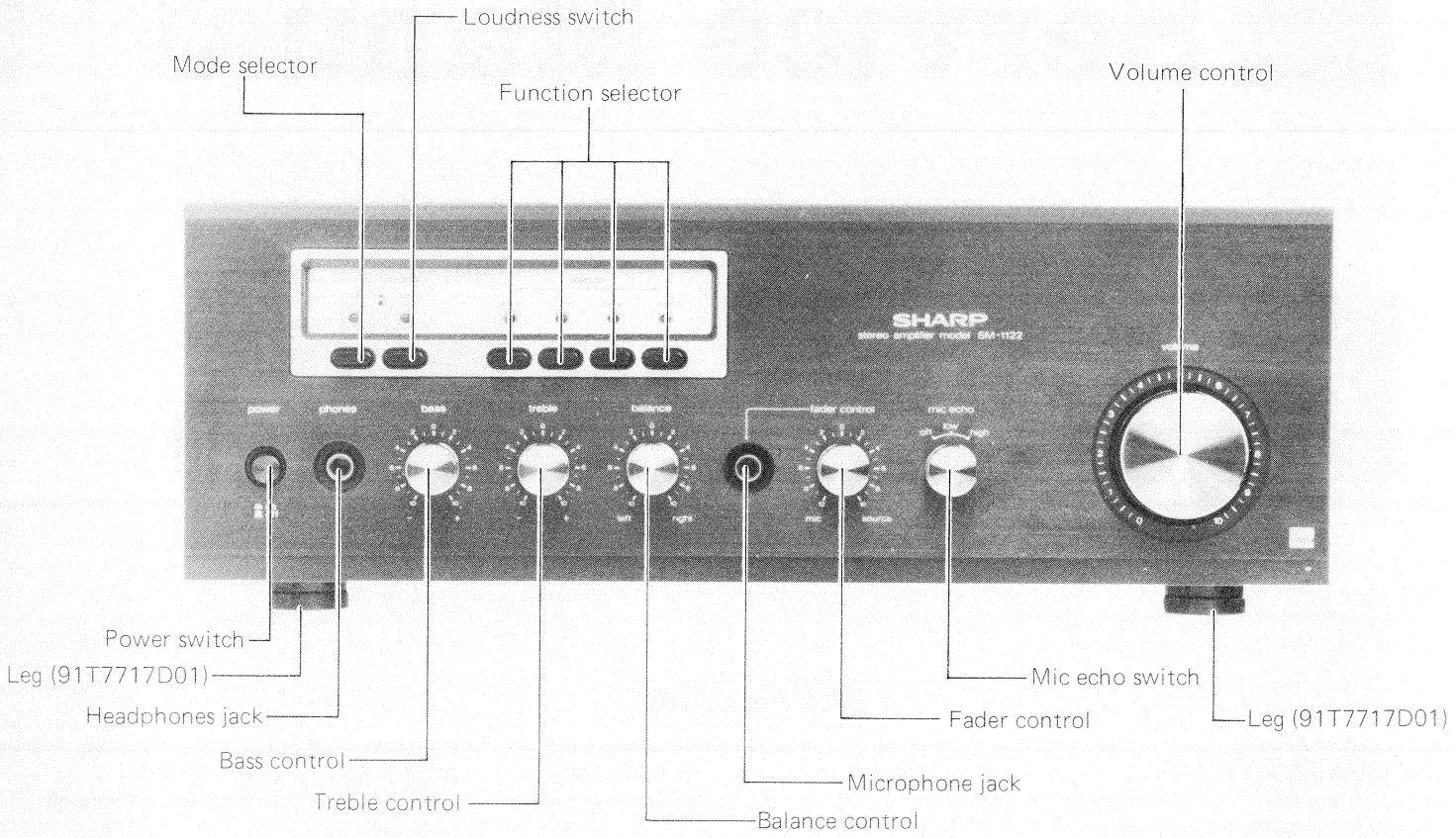


Figure 1

LAYOUT OF REAR PARTS (Figure 2)

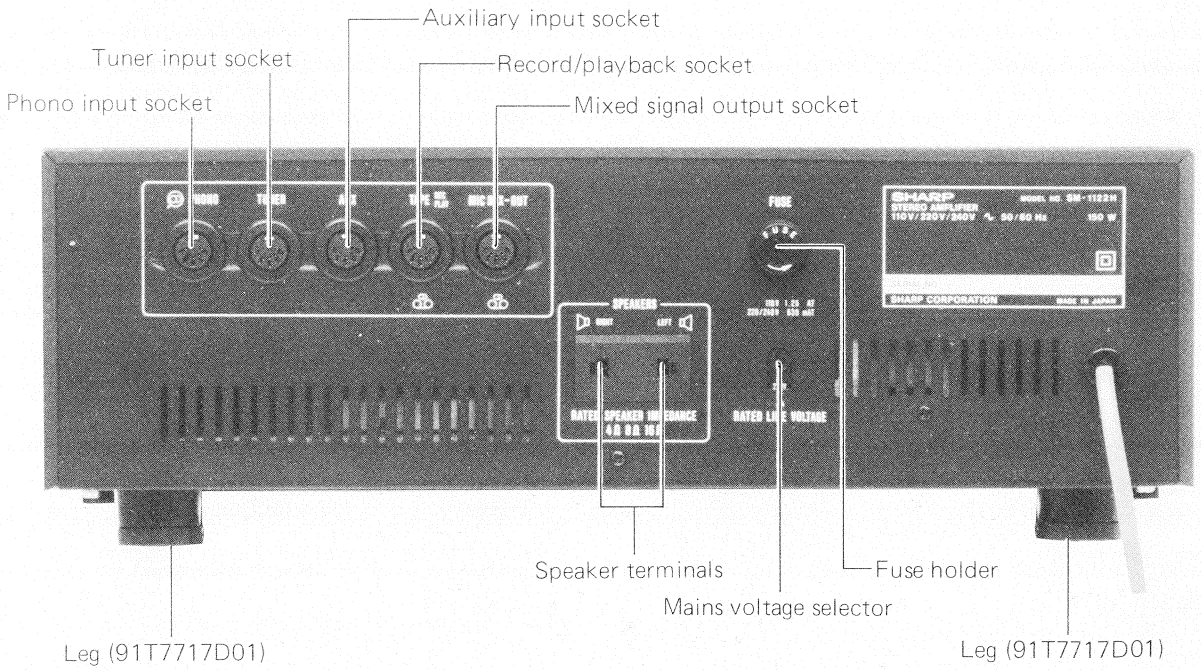


Figure 2

DISASSEMBLY (Refer to Figure 3)

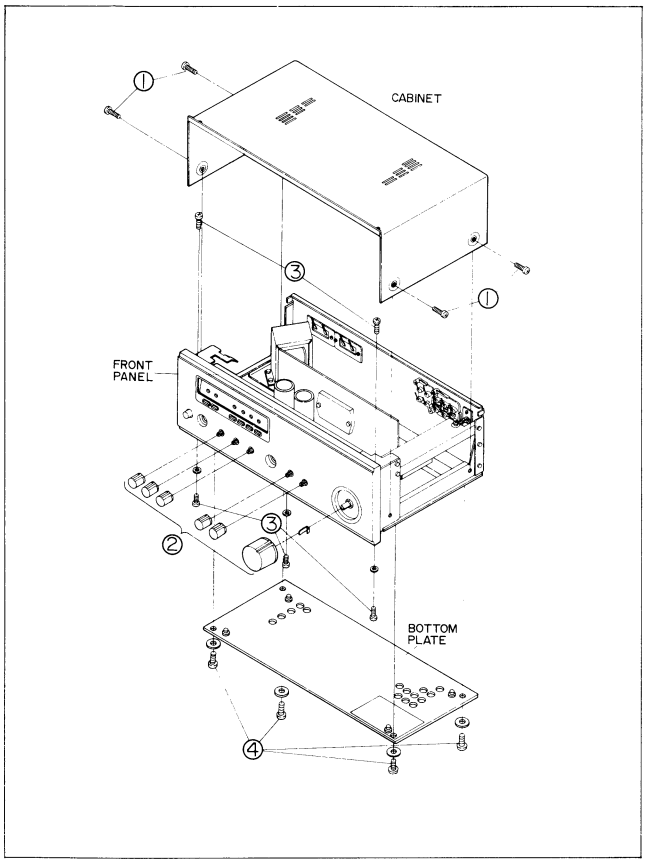


Figure 3

- HOW TO REMOVE THE CABINET:
  Remove the 4 screws ① retaining the cabinet (2 screws each in right and left) and lift up the cabinet to remove it.
- HOW TO REMOVE THE FRONT PANEL:
  Draw out the 6 Knobs ② from the front panel and remove the 5 screws ③ retaining the front panel. Then pull the front panel toward you to remove it.
- HOW TO REMOVE THE BOTTOM PLATE
  Turn over the set, remove the 4 screws ④ retaining the bottom plate and lift up the bottom plate to remove it.

VOLTAGE SELECTION (Refer to Figure 4)

Check the preset voltage before connecting the AC cord plug to an wall outlet. If the setting is different from your local supply AC voltage, the selector must be reset as follows. Rotate the voltage selector by using a screwdriver so that your local voltage number can be seen.

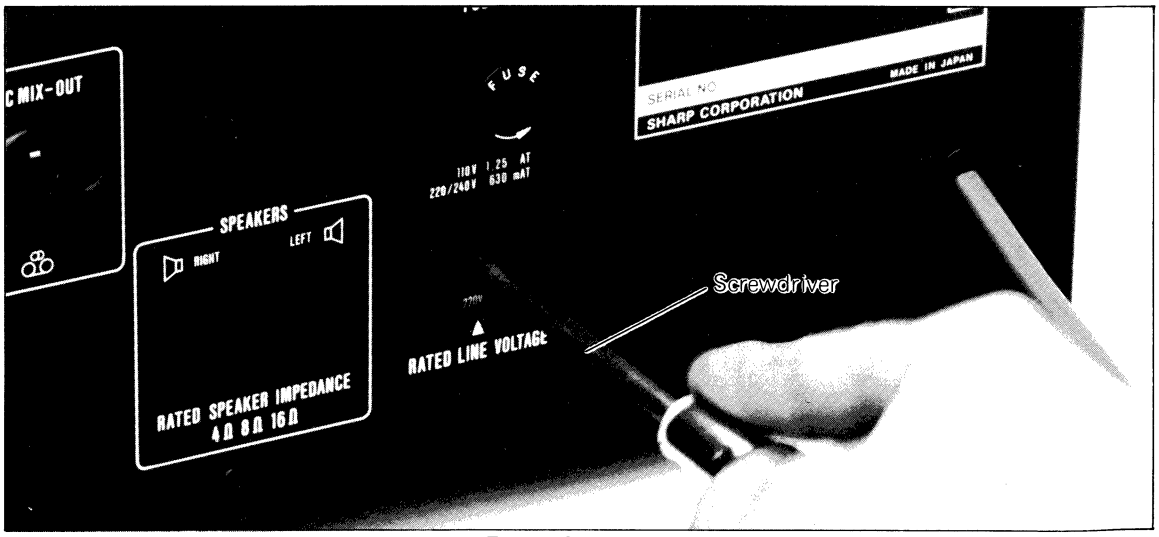


Figure 4

BLOCK DIAGRAM

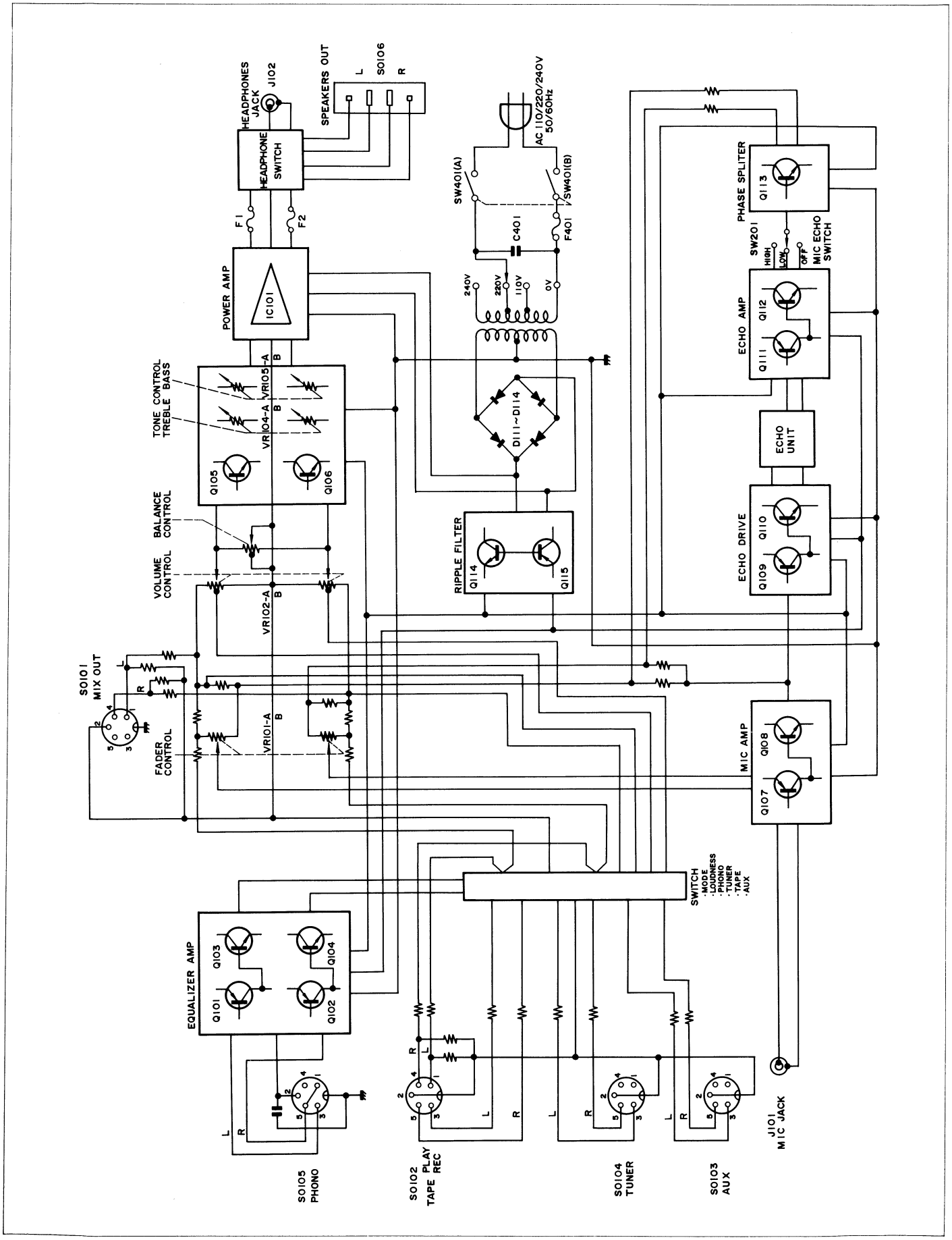


Figure 5

EQUALIZER CIRCUIT (Refer to Figure 6)

The equalizer circuit is a two-stage directly coupled amplifier type having a higher gain and it can therefore remarkably lower the distortion factor. Being powered by a two-power supply (+20V and −20V), this circuit provides a better distortion factor characteristic even with a large amount of input. The incoming signal, from the phono input jacks, is fed through the coupling capacitor (C103 or C104) to the 1st-stage transistor (Q101 or Q102), then coming out of the 2nd-stage transistor (Q103 or Q104) to enter the function selector (SW101-A) via the coupling capacitor (C121 or C122). The equalizer NF circuit consists of R117 thru R119. R121, C109, C115 and C117 thru R118, R120, R122, C110, C116 and C118.

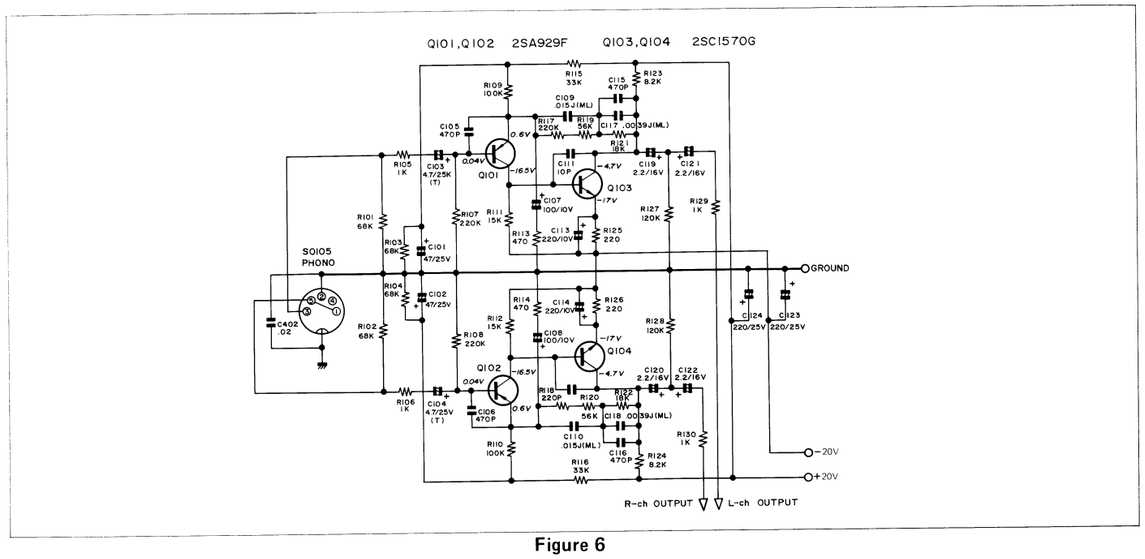


Figure 6

TONE CIRCUIT (Refer to Figure 7)

The tone circuit is an attenuator type circuit which comprises transistor (Q105 or Q106), capacitor and resistor.

Being an NPN low-noise type, the transistor (Q105 or Q106) ensures an outstanding signal-to-noise ratio. The signal coming from each of the function selectors (SW101A to SW101F) is passed on, through the fader control (VR101), volume control (VR102), balance control (VR103) and coupling capacitor (C127 or C128), to the base of the transistor (Q105 or Q106) where it is amplified. Besides, the frequency characteristic of the tone circuit may be varied by using the treble control (VR104) and bass control (VR105) to change the attenuation amount.

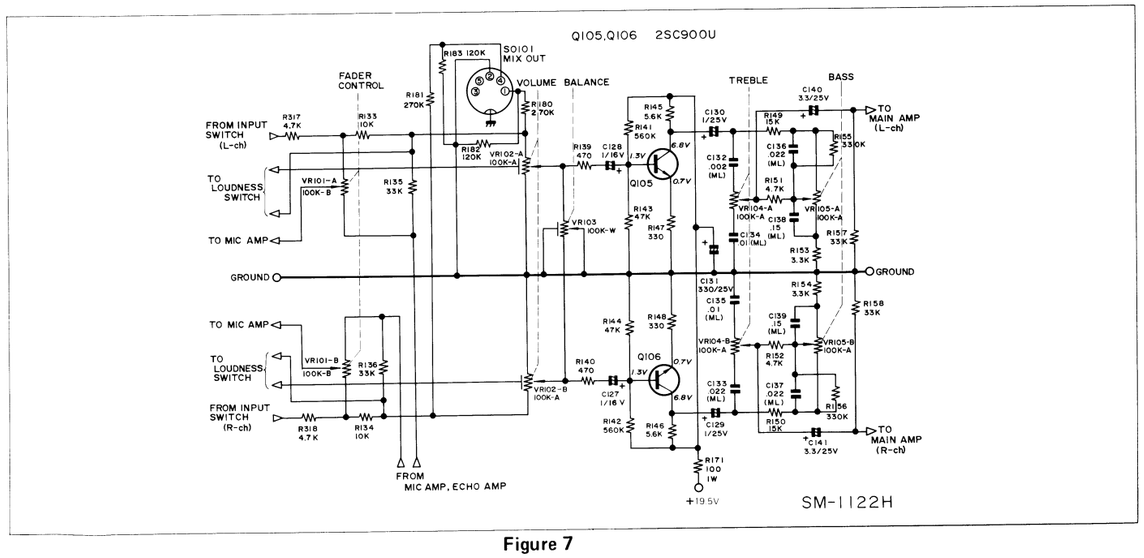


Figure 7

MAIN AMPLIFIER CIRCUIT (Refer to Figure 8)

The main amplifier circuit is a differential one-stage directly coupled, pure complementary dual IC which provides a very lowered distortion factor over a wide range of the band frequencies.

The circuit is initiated by a two-power supply (+24.5V and −24.5V) and the potential of output is kept to 0V. Coming from the tone circuit, the signal is applied through the coupling capacitor (C140 or C141) to the terminals 1 and 16 of the IC, and coming out of the terminals 7 and 10, it is then further supplied to the speaker terminals (TM101 or TM102) via the fuse (F101 or F102). The NF circuit is composed of resistors (R159 and R163, or R160 and R164) and capacitor (C144 or C143); the NF amount for the lower range is determined by the resistors (R159 and C144, or R160 and C143).

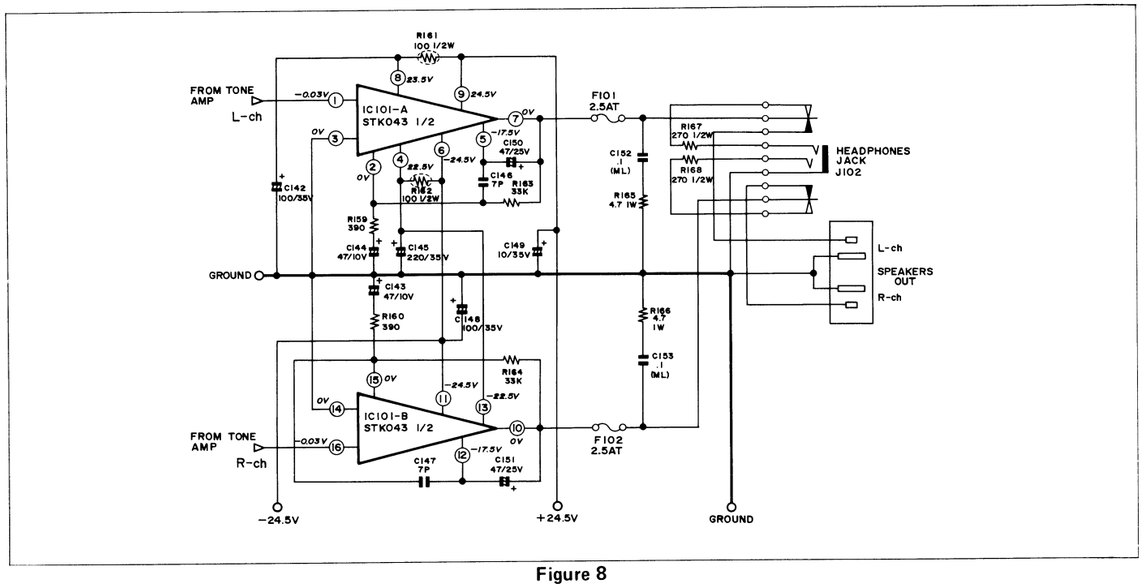


Figure 8

IC REPLACEMENT (Refer to Figure 9)

When replacing the power IC with a new one, firstly remove the two screws retaining the power IC and also the power IC's legs from the PWB. Next, sparingly apply silicone grease evenly over the metallic surface of a new power IC, bring the two screws through the retaining holes to fix them to the IC heat sink. After that, solder the IC's legs to the PWB.

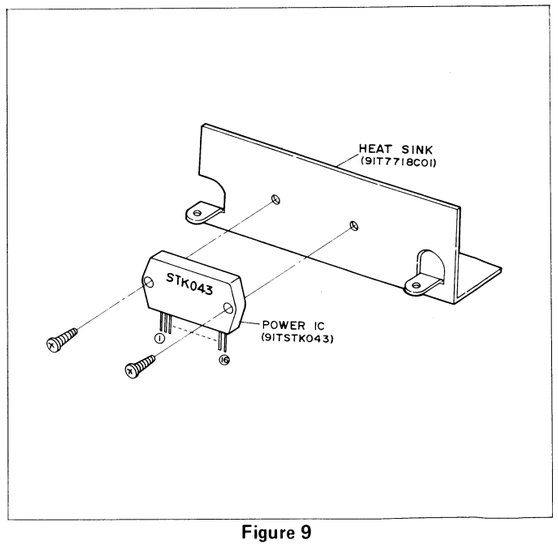


Figure 9

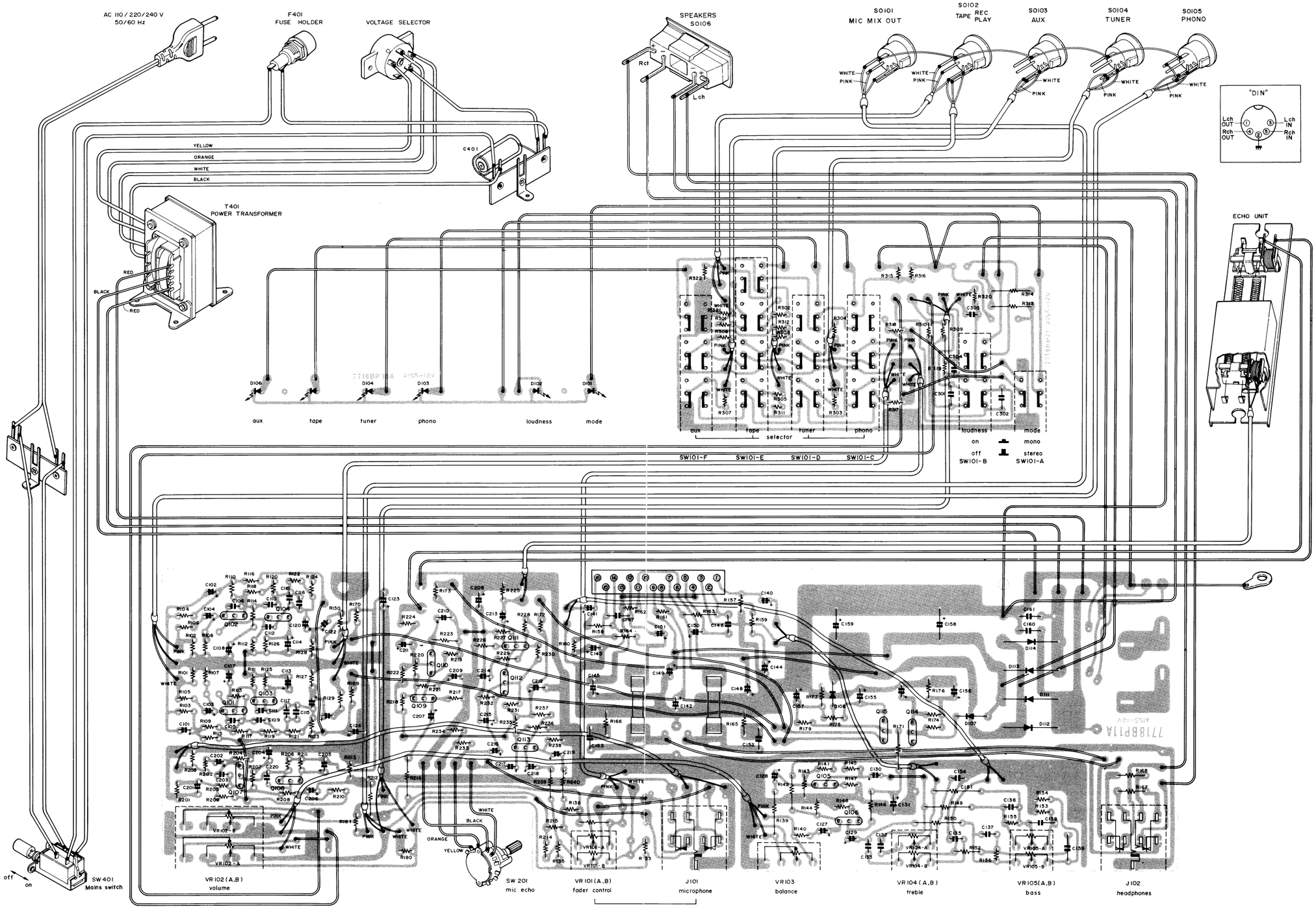
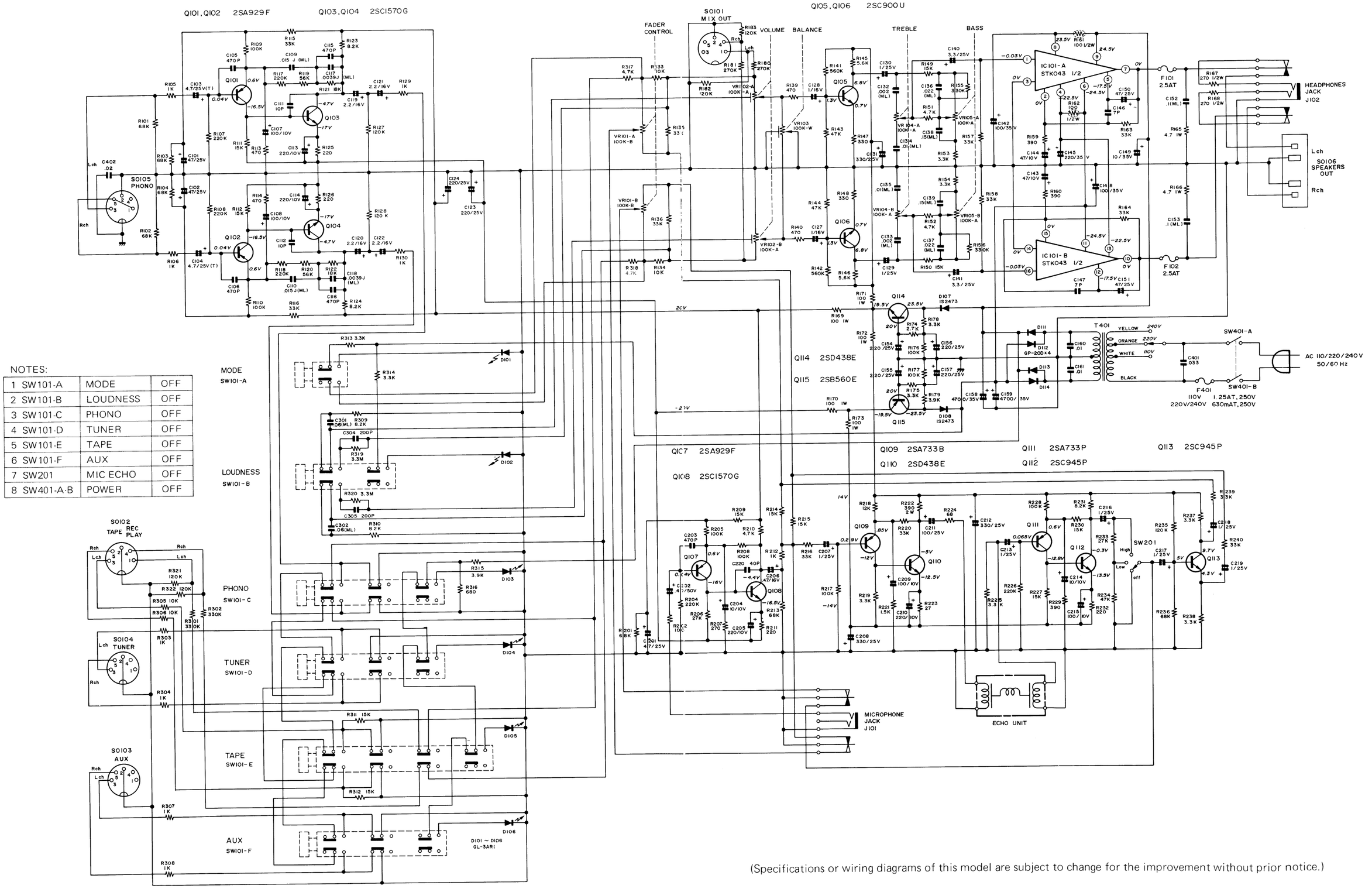


Figure 10 WIRING SIDE OF P.W. BOARD

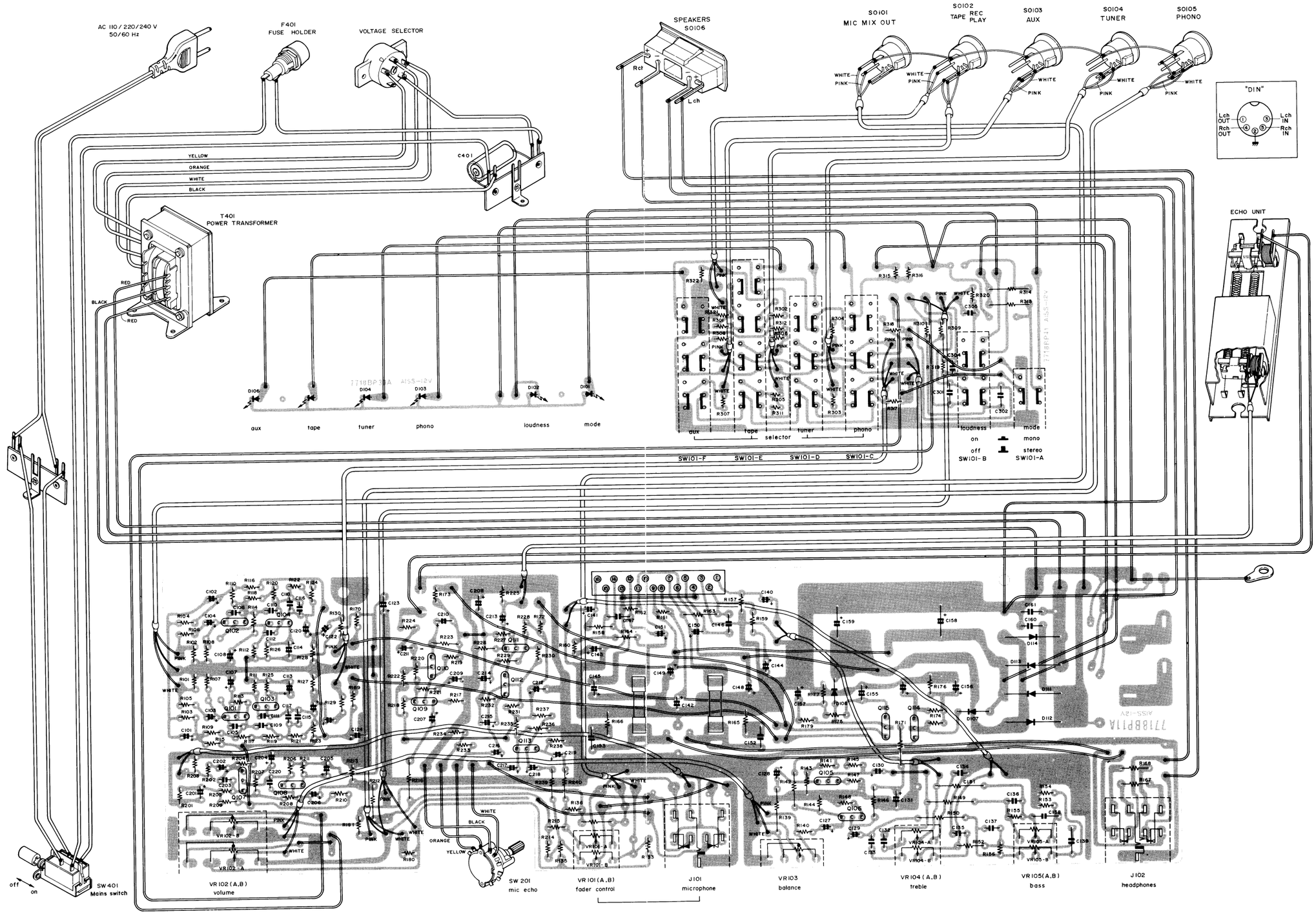


NOTES:

1 SW101-A	MODE	OFF
2 SW101-B	LOUDNESS	OFF
3 SW101-C	PHONO	OFF
4 SW101-D	TUNER	OFF
5 SW101-E	TAPE	OFF
6 SW101-F	AUX	OFF
7 SW201	MIC ECHO	OFF
8 SW401-A-B	POWER	OFF

(Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.)

Figure 11 SCHEMATIC DIAGRAM



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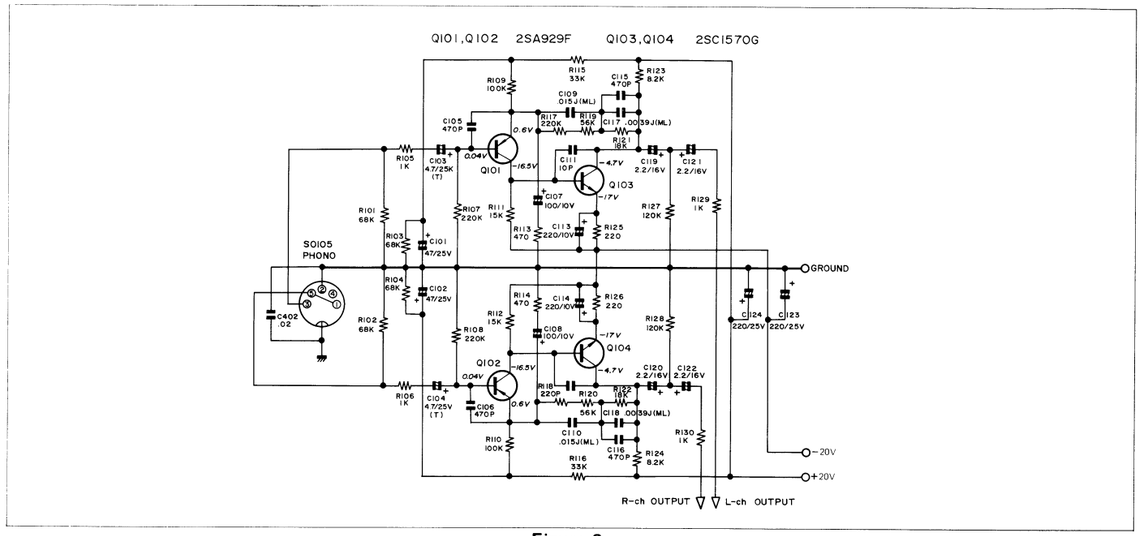

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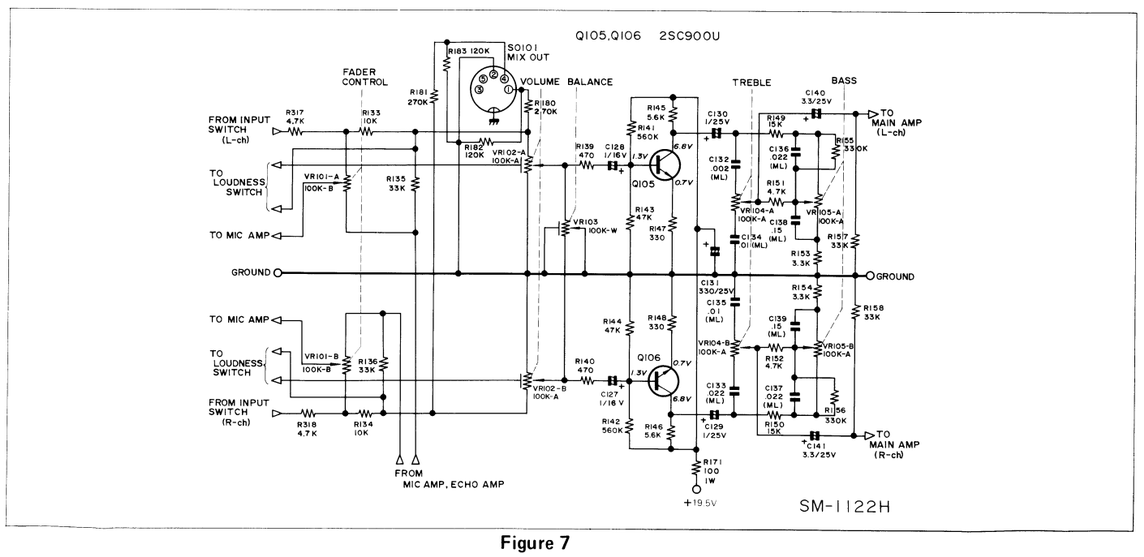

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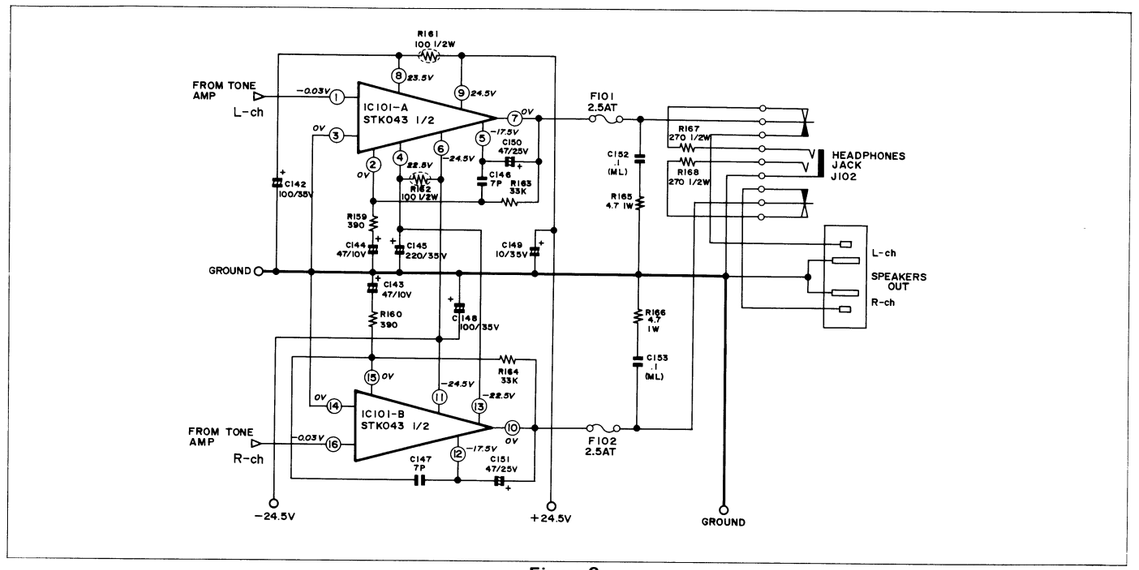

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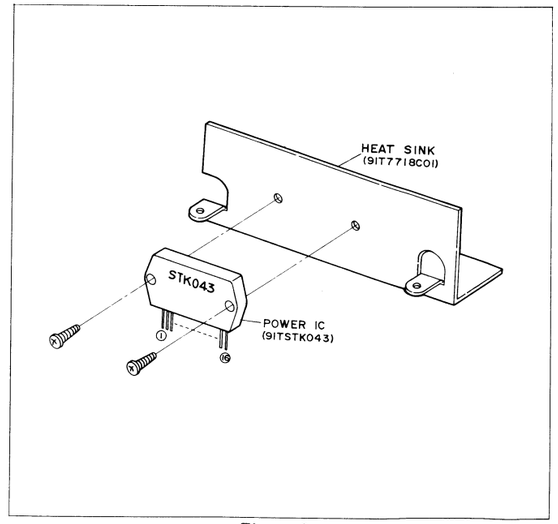

Figure 9

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

REF. NO.	PART NO.	DESCRIPTION	CODE
	INTEGRATED CIRCUITS		
IC101	91TSTK043	Power Amp	
	TRANSISTORS		
Q101, Q102	91T2SA929F	Equalizer Amp (2SA929F)	
Q103, Q104	91T2SC1570G	Equalizer Amp (2SC1570G)	
Q105, Q106	91T2SC900U	Tone Amp (2SC900U)	
Q107	91T2SA929F	Mic Amp (2SA929F)	
Q108	91T2SC1570G	Mic Amp (2SC1570G)	
Q109	91T2SA733P	Echo Drive (2SA733P)	
Q110	91T2SD438E	Echo Drive (2SD438E)	
Q111	91T2SA733P	Echo Amp (2SA733P)	
Q112	91T2SC945P	Echo Amp (2SC945P)	
Q113	91T2SC945P	Phase Spliter (2SC945P)	
Q114	91T2SD438E	Ripple Filter (2SD438E)	
Q115	91T2SB560E	Ripple Filter (2SB560E)	
	LED (Light Emitting Diode)		
D101	VHPGL3AR//-1	Mode Switch Indicator	
D102	VHPGL3AR//-1	Loudness Switch Indicator	
D103	VHPGL3AR//-1	Function Selector Indicator (PHONO)	
D104	VHPGL3AR//-1	Function Selector Indicator (TUNER)	
D105	VHPGL3AR//-1	Function Selector Indicator (TAPE)	
D106	VHPGL3AR//-1	Function Selector Indicator (AUX)	
	DIODES		
D107, D108	91T1S2473	Ripple Filter Control	
D111, D112, D113, D114	91TGP-20D	Power Rectifier	
	TRANSFORMER		
T401	91TTA-137	Power	
	CONTROLS		
VR101	91TRW-099	Fader Control	
VR102	91TRW-096	Volume Control	
VR103	91TRW-098	Balance Control	
VR104	91TRW-097	Treble Control	
VR105	91TRW-097	Bass Control	
	RESISTORS		
	(Unless otherwise specified resistors are 1/4W, ±5%, carbon type.)		
R101, R102, R103, R104	91TRD14PY68KK	68K ohm	
R105, R106	91TRD14PY1KK	1K ohm	
R107, R108	91TRD14PY220KK	220K ohm	
R109, R110	91TRD14PY100KK	100K ohm	
R111, R112	91TRD14PY15KK	15K ohm	
R113, R114	91TRD14PY470K	470 ohm	
R115, R116	91TRD14PY33KK	33K ohm	
R117, R118	91TRD14PY220KK	220K ohm	
R119, R120	91TRD14PY56KK	56K ohm	
R121, R122	91TRD14PY18KK	18K ohm	
R123, R124	91TRD14PY8.2KK	8.2K ohm	
R125, R126	91TRD14PY220K	220 ohm	
R127, R128	91TRD14PY120KK	120K ohm	
R129, R130	91TRD14PY1KK	1K ohm	
R133, R134	91TRD14PY10KK	10K ohm	
R135, R136	91TRD14PY33KK	33K ohm	
R139, R140	91TRD14PY470K	470 ohm	
R141, R142	91TRD14PY560KK	560K ohm	
R143, R144	91TRD14PY47KK	47K ohm	
R145, R146	91TRD14PY5.6KK	5.6K ohm	
R147, R148	91TRD14PY330K	330 ohm	
R149, R150	91TRD14PY15KK	15K ohm	
R151, R152	91TRD14PY4.7KK	4.7K ohm	

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
R153, R154	91TRD14PY3.3KK	3.3K ohm	
R155, R156	91TRD14PY330KK	330K ohm	
R157, R158	91TRD14PY33KK	33K ohm	
R159, R160	91TRD14PY390K	390 ohm	
R161, R162	91TRD12PY100K	100 ohm, 1/2W, Fuse Resistor	
R163, R164	91TRD14PY33KK	33K ohm	
R165, R166	91TRD11PY4.7K	4.7 ohm, 1W, ±10%, Carbon	
R167, R168	91TRD12PY270K	270 ohm, 1/2W, ±10%, Carbon	
R169, R170	91TRD11PY100K	100 ohm, 1W, ±10%, Carbon	
R171, R172, R173	91TRD11PY100K	100 ohm, 1W, ±10%, Carbon	
R174	91TRD14PY2.7KK	2.7K ohm	
R175	91TRD14PY3.3KK	3.3K ohm	
R176, R177	91TRD14PY100KK	100K ohm	
R178	91TRD14PY3.3KK	3.3K ohm	
R179	91TRD14PY3.9KK	3.9K ohm	
R180, R181	91TRD14P270KK	270K ohm	
R201	91TRD14PY68KK	68K ohm	
R202	91TRD14PY100K	100 ohm	
R204	91TRD14PY220KK	220K ohm	
R205	91TRD14PY100KK	100K ohm	
R206	91TRD14PY27KK	27K ohm	
R207	91TRD14PY270K	270 ohm	
R208	91TRD14PY100KK	100K ohm	
R209	91TRD14PY15KK	15K ohm	
R210	91TRD14PY4.7KK	4.7K ohm	
R211	91TRD14PY220K	220 ohm	
R212	91TRD14PY1KK	1K ohm	
R213	91TRD14PY68KK	68K ohm	
R214 R215	91TRD14PY15KK	15K ohm	
R216	91TRD14PY33KK	33K ohm	
R217	91TRD14PY100KK	100K ohm	
R218	91TRD14PY12KK	12K ohm	
R219	91TRD14PY3.3KK	3.3K ohm	
R220	91TRD14PY33KK	33K ohm	
R221	91TRD14PY1.5KK	1.5K ohm	
R222	91TRD-2PY390K	390 ohm, 2W, ±10%, Carbon	
R223	91TRD14PY27K	27 ohm	
R224	91TRD14PY68K	68 ohm	
R225	91TRD14PY3.3KK	3.3K ohm	
R226	91TRD14PY220KK	220K ohm	
R227	91TRD14PY15KK	15K ohm	
R228	91TRD14PY100KK	100K ohm	
R229	91TRD14PY390K	390 ohm	
R230	91TRD14PY15KK	15K ohm	
R231	91TRD14PY8.2KK	8.2K ohm	
R232	91TRD14PY220K	220 ohm	
R233	91TRD14PY27KK	27K ohm	
R234	91TRD14PY47KK	47K ohm	
R235	91TRD14PY120KK	120K ohm	
R236	91TRD14PY68KK	68K ohm	
R237, R238	91TRD14PY3.3KK	3.3K ohm	

REF. NO.	PART NO.	DESCRIPTION	CODE
R239, R240	91TRD14PY33KK	33K ohm	
R301, R302,	91TRD14PY330KK	330K ohm	
R303, R304	91TRD14PY1KK	1K ohm	
R305, R306	91TRD14PY10KK	10K ohm	
R307, R308	91TRD14PY1KK	1K ohm	
R309, R310	91TRD14PY8.2KK	8.2K ohm	
R311, R312	91TRD14PY15KK	15K ohm	
R313, R314	91TRD14PY3.3KK	3.3K ohm	
R315	91TRD14PY3.9KK	3.9K ohm	
R316	91TRD14PY680K	680 ohm	
R317, R318	91TRD14PY3.3KK	3.3K ohm	
R319, R320	91TRD14PY3.3MK	3.3M ohm	
R321, R322	91TRD14PY120KK	120K ohm	

CAPACITORS

C105, C106	91TCK-471M	470PF, 50V, ±20%, Ceramic	
C109, C110	91TCMS-153J	.015MFD, 50V, ±5%, Mylar	
C111, C112	91TCC-100C	10PF, 50V, ±.25%, Ceramic	
C115, C116	91TCK-471M	470PF, 50V, ±20%, Ceramic	
C117, C118	91TCMS-392J	.0039MFD, 50V, ±5%, Mylar	
C132, C133	91TCMS-202K	.022MFD, 50V, ±10%, Mylar	
C134, C135	91TCMS-103K	.01MFD, 50V, ±10%, Mylar	
C136, C137	91TCMS-202K	.022MFD, 50V, ±10%, Mylar	
C138, C139	91TCMS-154K	.15MFD, 50V, ±10%, Mylar	
C146, C147	91TCC-070C	7PF, 50V, ±.25%, Ceramic	
C152, C153	91TCMS-104M	.1MFD, 50V, ±20%, Mylar	
C160, C161	91CMS-103K	.01MFD, 50V, ±10%, Mylar	
C203	91TCK-471M	470PF, 50V, ±20%, Ceramic	
C220	91TCK-400J	40PF, 50V, ±5%, Ceramic	
C301, C302	91TCMS602K	.06MFD, 50V, ±10%, Mylar	
C304, C305	91TCK-201M	200PF, 50V, ±20%, Ceramic	
C401	91TCK-333M	.033MFD, 50V, ±20%, Ceramic	
C402	91TCK-203M	.02MFD, 50V, ±20%, Ceramic	

ELECTROLYTIC CAPACITORS

C101, C102	91TCDV47/25Y	47MFD, 25V, +50 −10%	
C103, C104	91TCDV4.7/25M	4.7MFD, 25V, ±20%	

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C107, C108	91TCDV100/10Y	100MFD, 10V, +50 −10%	
C113, C114	91TCDV220/10Y	220MFD, 10V, +50 −10%	
C119, C120, C121, C122	91TCFV2.2/16K	2.2MFD, 16V, ±10%	
C123, C124	91TCDV220/25Y	220MFD, 25V, +50 −10%	
C127, C128	91TCDV1/16A	1MFD, 16V, +75 −10%	
C129, C130	91TCFV1/25A	1MFD, 25V, +75 −10%	
C131	91TCDV330/25Y	330MFD, 25V, +50 −10%	
C140, C141	91TCDV3.3/25A	3.3MFD, 25V, +75 −10%	
C142	91TCDV100/35Y	100MFD, 35V, +50 −10%	
C143, C144	91TCDV47/10Y	47MFD, 10V, +50 −10%	
C145	91TCDV220/35Y	220MFD, 35V, +50 −10%	
C148	91TCDV100/35Y	100MFD, 35V, +50 −10%	
C149	91TCDV10/35Y	10MFD, 35V, +50 −10%	
C150, C151	91TCDV47/25Y	47MFD, 25V, +50 −10%	
C154, C155, C156, C157	91TCDV220/25Y	220MFD, 25V, +50 −10%	
C158, C159	91TCDV4700/35Y	4700MFD, 35V, +50−10%	
C201	91TCDV47/25Y	47MFD, 25V, +50 −10%	
C202	91TCDV47/50Y	47MFD, 50V, +50 −10%	
C204	91TCDV10/10Y	10MFD, 10V, +50 −10%	
C205	91TCDV220/10Y	220MFD, 10V, +50 −10%	
C206	91TCDV.47/16K	.47MFD, 16V, ±10%	
C207	91TCDV1/25A	1MFD, 25V, +75 −10%	
C208	91TCDV330/25Y	330MFD, 25V, +50 −10%	
C209	91TCDV100/10Y	100MFD, 10V, +50 −10%	
C210	91TCDV220/10Y	220MFD, 10V, +50 −10%	
C211	91TCDV100/25Y	100MFD, 25V, +50 −10%	
C212	91TCDV330/25Y	330MFD, 25V, +50 −10%	
C213	91TCDV1/25A	1MFD, 25V, +75 −10%	
C214	91TCDV10/10Y	10MFD, 10V, +50 −10%	
C215	91TCDV100/10Y	100MFD, 10V, +50 −10%	
C216, C217, C218, C219	91TCDV1/25A	1MFD, 25V, +75 −10%	

MISCELLANEOUS

F101, F102	91TZF-054	Fuse, 2.5AT	
F401	91TZF-053	Fuse, 110V, 1.25AT	
	91TZF-045	Fuse, 220/240V, 630mAT	
J101	91TJH-007	Jack, MIC	
J102	91TJH-007	Jack, Headphone	
SO101	91TJV006	DIN Socket, MIC MIX OUT	
SO102	91TJV006	DIN Socket TAPE REC/ PLAY	
SO103	91TJV006	DIN Socket, AUX	
SO104	91TJV006	DIN Socket, TUNER	
SO105	91TJV006	DIN Socket, PHONO	
SO106	91TJV007	Socket, SPEAKERS	
SW201	91TSQ-059	Switch, Mic Echo	
SW401	91TSP-103	Switch, Power	
F401	91TZG-011	Fuse Holder	
	91T7718BP112K	P.W. Board, Amp	
	91T7718BP401K	P.W. Board, Switch Mic Input	
	91T7718BP301K	P.W. Board, L.E.D	
	RREVA0001AFZZ	Echo Unit	
	91TZA-058	AC Supply Cord	
	91TLP-001	Lug, Pin	
	91T7718A05	Panel, Mode/Loudness/ Function Selector	
	91T7718A07	Rear Panel	
	91T7718C10	Plate Spring, Volume Knob	
	91T7718A04	Cabinet	
	91T7718B07	Front Panel	
	JKNBP0165AFSA	Knob, Volume (91T7718B02)	
	JKNBN0304AFSC	Knob, Bass/Treble/Balance/ Fader/Mic echo switch (91T7718B03)	
	91T7718A01	Cover, Mode/Loudness/ Function Selector	
	91T7718B04	Knob, Mode/Loudness/ Function Selector	
	91T7718B05	Plate, Bottom	
	91T7717B06	Knob, Power	
	91T7718C06	Heat-sink	
	91T7718C03	Front Chassis	
	91T7718C08	Bracket, Power Transformers	
	91T7718C04	Bracket, Chassis	
	91T7718C05	Bracket, Echo Unit	
	91T7718C07	Bracket, Bottom Plate	
	91T7717C02	Bracket, Side	
	91T7717C04	Bracket, Pulley	
	91T7717C05	Bracket, Pulley	
	91T7717C10	Spring, Knob Volume	
	91T7502C07	Shield Plate (Bottom Plate)	
	91T7608C20	Wire Clip	
	91T7717D01	Leg (See Figure 1, 2)	
	91T7717D05	Spacer	
	91T3361D04	Bushing	
	91T7718F04	Packing Case	
	91T7717F02	Packing Add	
	91TSQ-058	Voltage selector	
	91TLA-016	Lug Terminal	
SW101 (A~F)	91TSP-102	Switch, Mode/Loudness/ Function Selector	
	91TZG-012	Fuse Holder (P.W. Board)	